

DESIGN NOTES

Specifications:

Design: Bridge Design Specifications (1983 AASHTO Specifications with revisions by Caltrans).Depth of cover is assumed to be uniform.

Earth Load:

Earth pressures for two conditions:
2240 kg/m³ vert,670 kg/m³ horiz
2240 kg/m³ vert,2240 kg/m³ horiz

Unit Stresses:

f'c = 35 MPa
f'y = 450 MPa for weld wire fabric
n = 7

Shear:

Maximum allowable shear,v=0.291√ f'c,MPa

Exclusion:

Axial loading on the members has not been considered.

Earthwork:

See "Precast RCB Culvert,Excavation and Backfill Details" sheet.

GENERAL NOTES

Designation:

Standard single or multiple precast box culverts are shown on the plans as span times height with maximum cover over roof thus: 2.4 x 1.5 m RCB with 3 m or double 3 m x 1.5 m RCB with 6 m,followed by alternatives.

Alternatives:

Single cell:

Standard dimensions of AASHTO Material Specification 'M259' or 'M273'.

Multiple Cell:

Constructed by placing single cells adjacent to each other.Inlet and outlet ends of culvert will be rounded unless square ends are designated. Parapet will be shown unless designated in plans.Such designation may be different for inlet and outlet ends.

Limitations:

Where the overfill is less than 300 mm, Precast RCB culverts are not to be used. Precast RCB culverts are not to be used in siphon or pressurized installations unless appropriate "watertight" jointing is provided.

Special Reinforcement Coverage:

Precast RCB culvert standard details are not to be used in a corrosive environment or where there is a severe abrasive flow condition or freeze-thaw locations.

Special design:

Required for culvert with different conditions,or loads or design bearing pressures greater than those given on these plans.Required for culverts where end details need higher skew angles or higher parapets or barrier sections.

CONSTRUCTION NOTES

Cutoff Walls:

1.2 m Cutoff walls are to be provided at inlet and/or outlet unless channel is lined and unless otherwise shown. These walls are to be extended if scour conditions warrant. See Standard Plans D84,D85 and D86A.

Wingwalls:

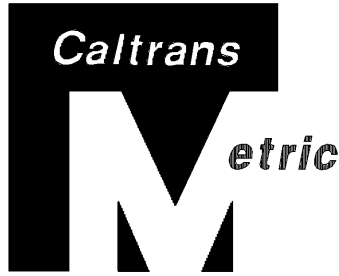
Wingwalls shall be cast-in-place and shall conform to standard plan details for box culvert wingwalls.See Standard Plans D84,D85 and D86A.

Earthwork:

See "Precast RCB Culvert,Excavation and Backfill Details" sheet.

Construction Loads:

Strutting may be required near temporary ends.For construction loads on culverts,see Standard Plan D88.



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

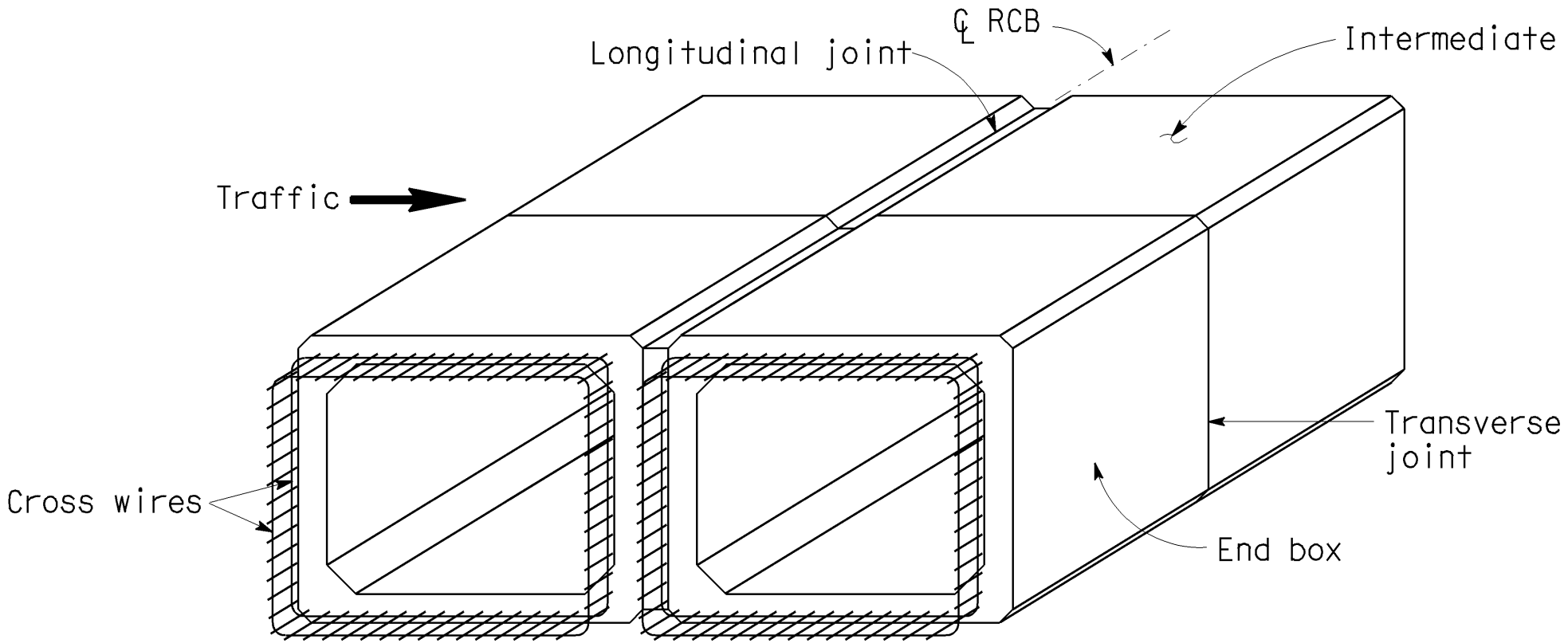
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

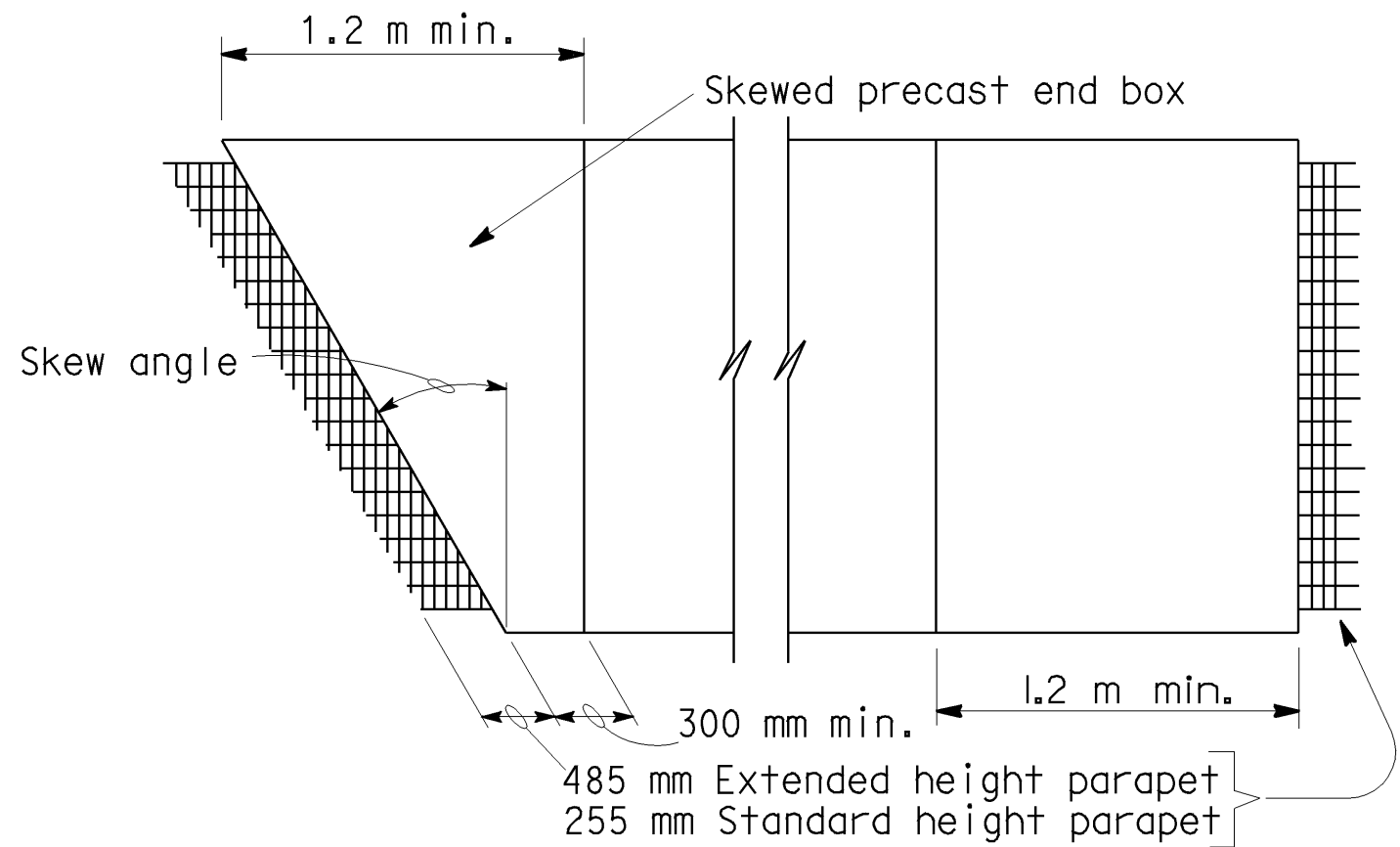
CIVIL

STATE OF CALIFORNIA



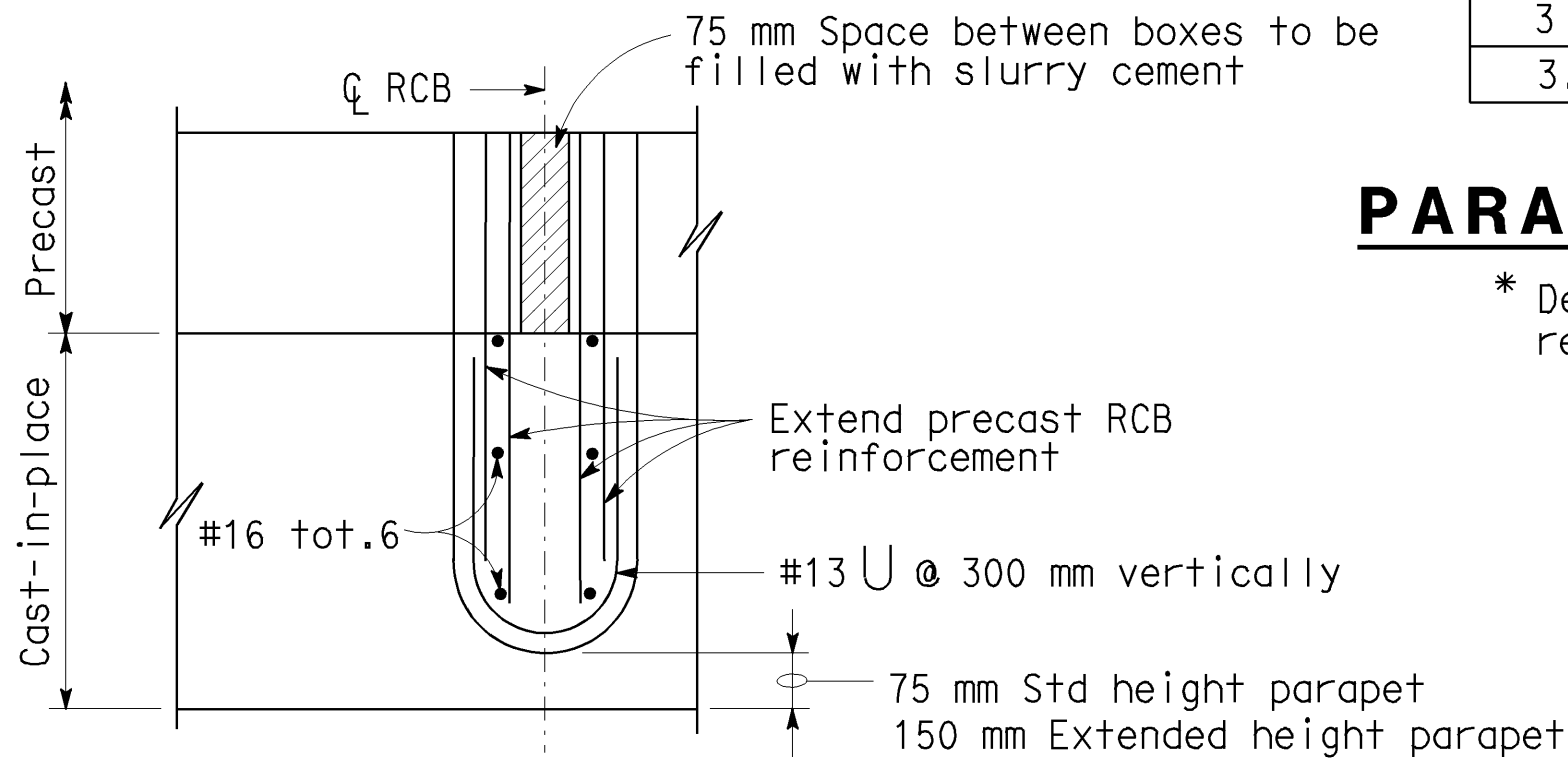
PRECAST RCB TERMINOLOGY

Note: Inner and outer reinforcement to be exposed as required to tie to cast-in-place construction. A minimum of two cross wires shall be exposed on all sides.

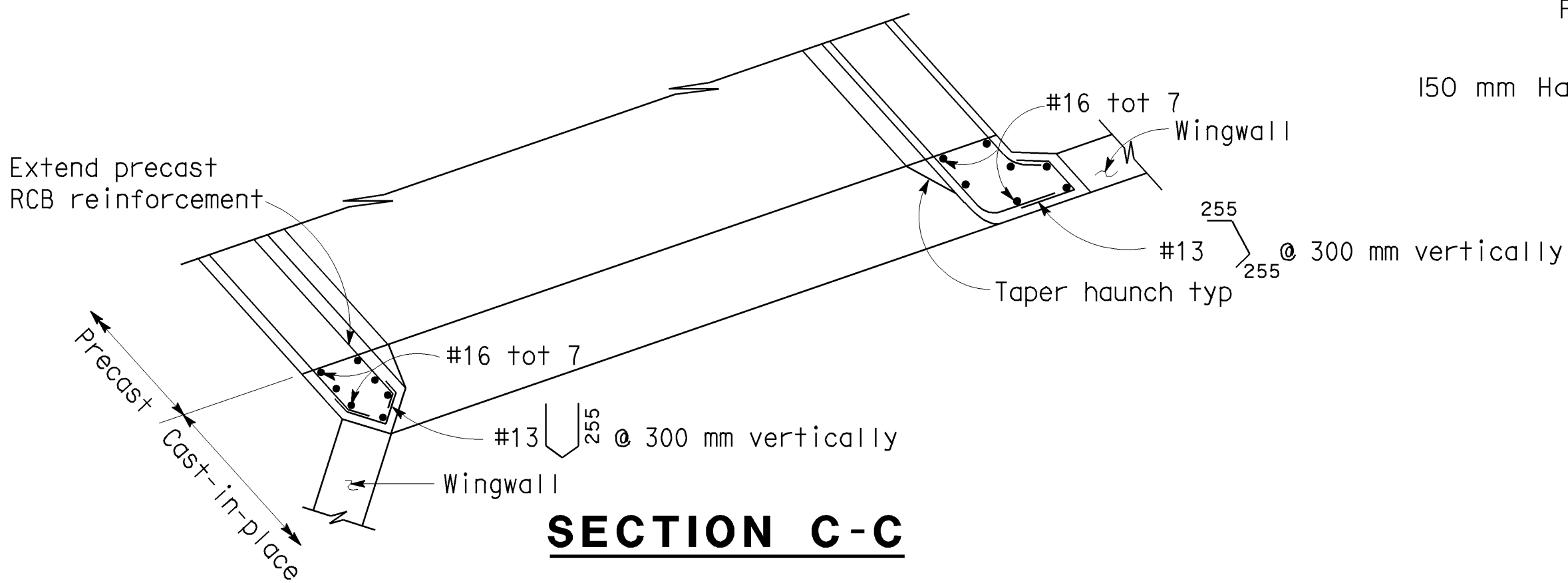


PARTIAL PLAN VIEW

For illustrative purposes only.
For correct skew direction see plans.



PARTIAL PLAN INTERIOR WALL MULTI CELL CULVERT

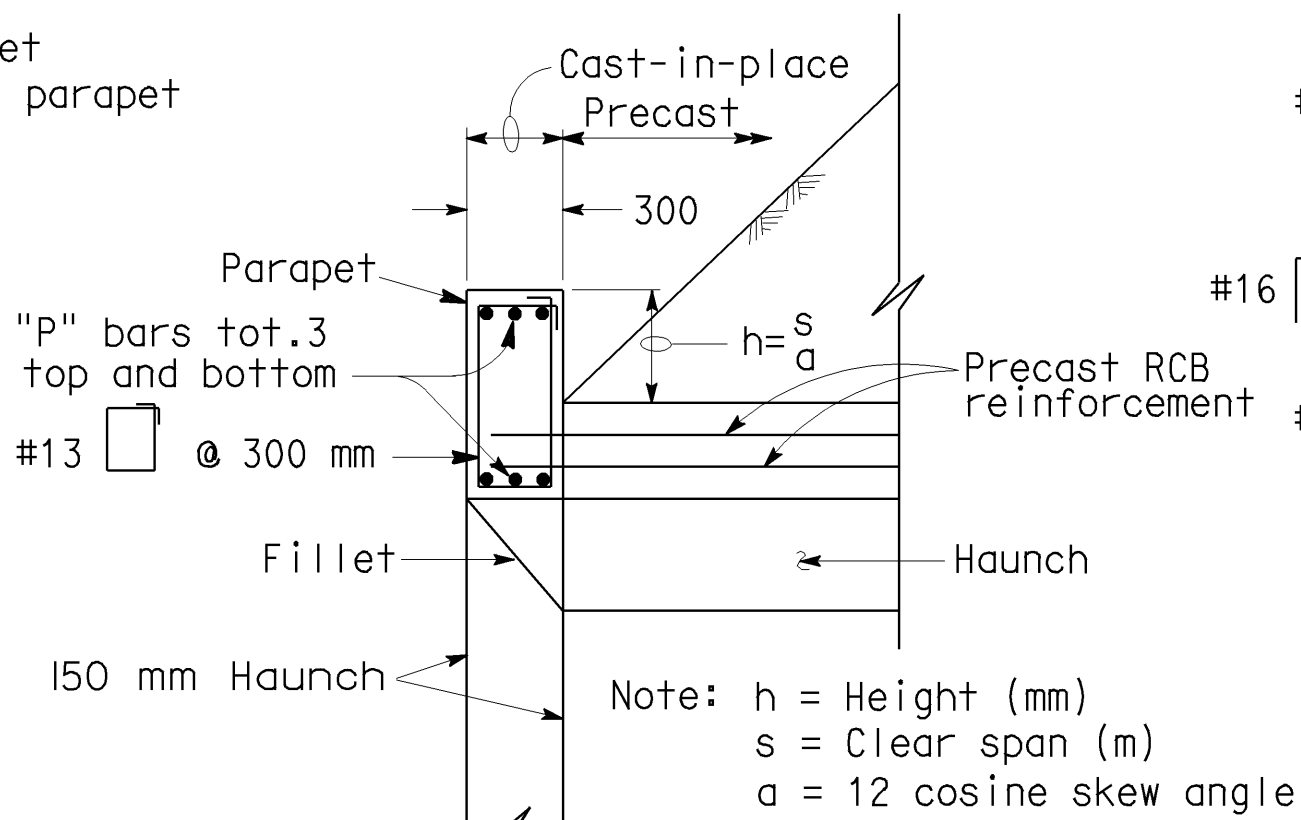


SECTION C-C

Parapet "P" Bars			
Skew Angle	0° to 15°	16° to 30°	31° to 45°
Span			
1.2 m	#16	#16	#16
1.8 m	#16	#16	*
2.4 m	#16	#16	*
3 m	#16	*	*
3.7 m	#19	*	*

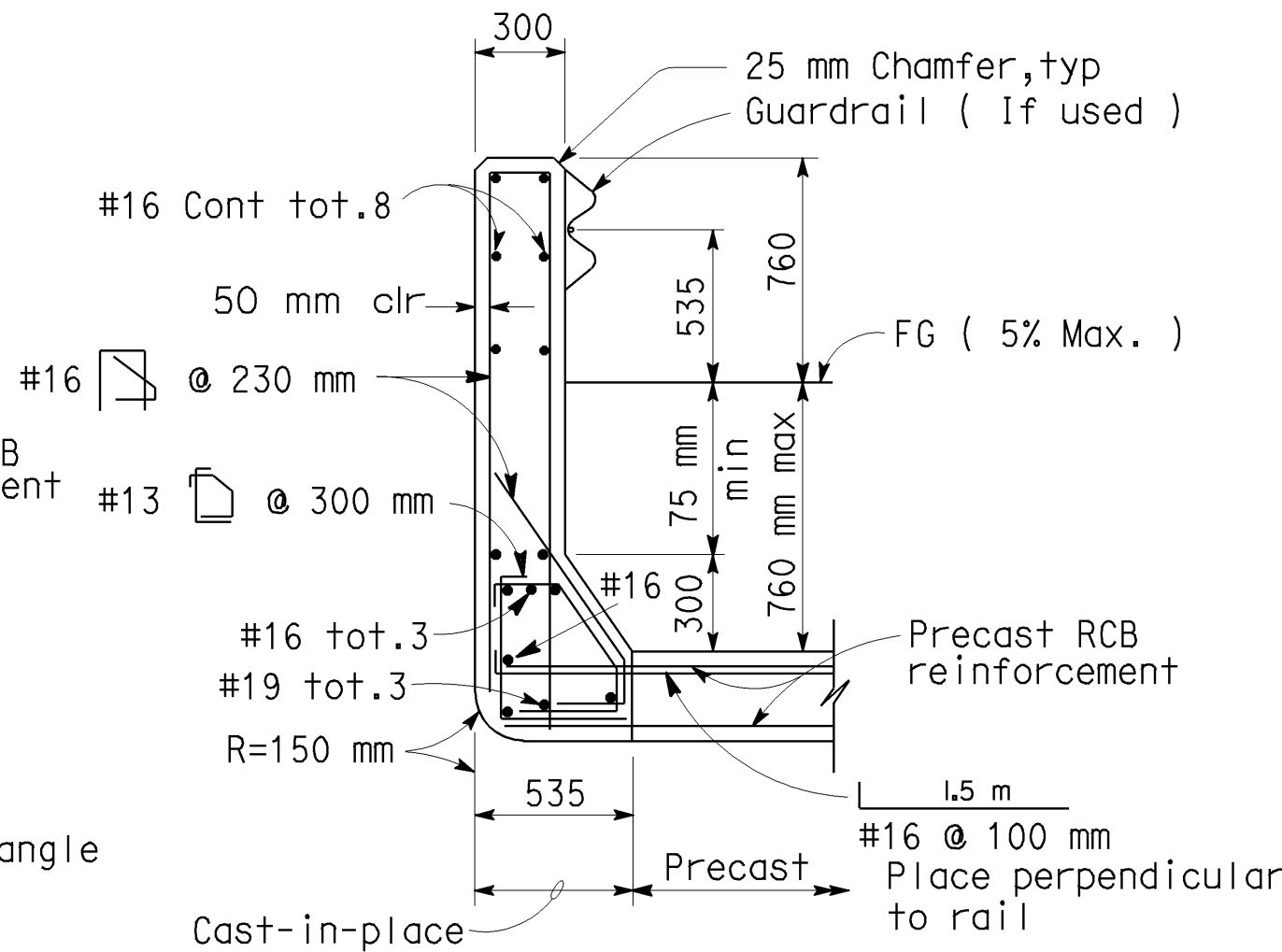
PARAPET REINFORCEMENT

* Design limited by skew of precast reinforced concrete box section



SECTION A-A

(Standard Height Parapet)



SECTION A-A

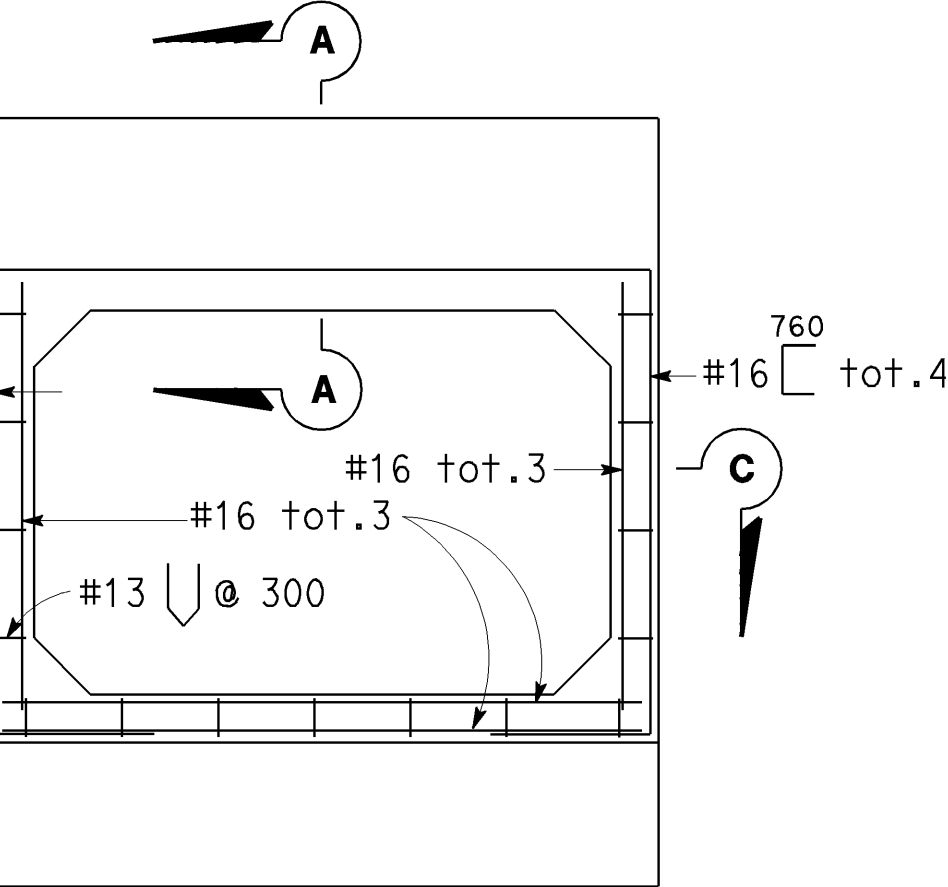
(Extended Height Parapet)

TYPICAL CULVERT END DETAILS

For wall and invert reinforcement not shown,See "End Elevation" detail

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CAST-IN-PLACE END ELEVATION

STANDARD DRAWING					
RELEASE DATE	4/15/97	DESIGN BY	WOODY	CHECKED	GALLAGHER
FILE NO.	xs17-030	DETAILS BY	R. YEE	CHECKED	GALLAGHER
		SUBMITTED BY	COTTER	DRAWING DATE	4/92
				OFFICE CHIEF	Shannon H. Reed

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO.
KILOMETER POST

CULVERT - PRECAST RCB
MISCELLANEOUS DETAILS